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Energy Supply Sector GHG Reduction Policy Options
Prepared for
TWG Meeting #5, November 10, 2005

Potential Emission Reductions *	Potential Cost or Cost Savings *
High (H): At least 1 Million Metric Tons (MMT) carbon dioxide equivalent (CO_2e) per year by 2020 (~1% of current NM emissions)	**High (H)**: $50 per Metric Ton CO_2e ($MTCO_2e$) or above
Medium (M): From 0.1 to 1 MMT CO_2e per year by 2020	**Medium (M):** \$5-50/$MTCO_2e$
Low (L): Less than 0.1 MMT CO_2e per year by 2020	**Low (L):** Less than \$5/$MTCO_2e$
Uncertain (U): Not able to estimate at this time	**Cost Savings**: Options that save money, i.e., that have "negative costs."
	Uncertain (U): Not able to estimate at this time

***** "Potential" here connotes rough initial estimate based in part on experience in other states. Also, several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

Definition of Priorities for Analysis:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low**: Low priority options will be analyzed last, time and resources permitting.
- **"TBD"**: Still to be determined by the TWG

**** Options marked with a double asterisk (**) indicate options that are at least partially "base case" policies, i.e., that have been or will be implemented at some level in Arizona. Please see http://www.azclimatechange.us/ewebeditpro/items/O40F6847.pdf for an initial, non-comprehensive sampling of such policies as they relate to the policy option categories listed below.**

Comments or priorities highlighted in yellow were discussed and affirmed during the Arizona Climate Change Advisory Group (CCAG) Meeting on September 29, 2005. CCAG meeting summary is posted at **http://www.azclimatechange.us/template.cfm?FrontID=4670**

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
1.	**Renewable and Low Emitting Energy**					
1.1	Renewable Portfolio Standard/Environmental Portfolio Standard (including consideration of an expanded EPS)	**H**	**H**	**L/M**		
1.2	Public Benefit Charge Funds	**H**	**H**	**L/M**		
1.3	Direct Renewable Energy Support: including Tax Credits and Incentives, R&D, and siting/zoning	**H**	**L - H**	**M**		
1.4	Green Power Purchases and Marketing	**M**	**L/M – depends on technology & purchase level**	**L/M – depends on technology & purchase level**		
1.5	Landfill Gas Recovery (see also Waste)	**M**	**L**	**L**		
2.	**Advanced Fossil Fuel Strategies**					
2.1	Carbon Capture and Sequestration (CCS)	**M**	**H**	**H**		
2.2	Combined H2/electricity production from fossil fuels with sequestration	**M**	**H**	**H**		
2.3	Advanced fossil technologies (e.g. IGCC)	**M**				
2.4	Fuel Cell Development Incentives	**M**	**L**	**H**		
2.5	Tax Credits and Incentives	**M**				
2.6	Research and Development (R&D)	**M**	**U (L in short term)**	**U**		
3.	**Other Electricity Measures**					

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
3.1	Efficiency Improvements and Repowering Existing Plants	**M**	**U**	**U**		
3.2	Nuclear Plant Relicensing and Uprating	**M**				
4.	**Distributed Generation**					
4.1	Combined Heat and Power Incentive Policies and Barrier Reduction	**M**	**M/H**	**L**		
5.	**Emissions Policies**					
5.1	GHG Cap and Trade	**H**	**H**	**U**		Issues with implementation level were raised; some TWG members want only a national cap & trade. Others expressed an interest in state or regional.
5.2	Generation Performance Standards	**H**	**H**	**U**		
5.3	Carbon Intensity Target	**H**	**H**	**U**		
5.4	GHG Offset/mitigation requirements for new power plants	**H**				
5.5	GHG Offset/mitigation requirements for existing power plants	**H**				
5.6	Voluntary Utility CO2 Targets and/or Trading	**H**	**U**	**U (typically L)**		Some TWG members expressed that utilities are now able to set voluntary targets without any policy, so there is no need to explore this as an option.
5.7	CO2 Tax	**H**	**L to H**	**L to H – depends on tax level**		Some TWG members are quite interested in a CO2 tax, while others were not.
5.8	Environmental dispatch	**M**	**H**	**H**		One TWG member is very enthusiastic about environmental dispatch as an option, while other TWG members showed little or no interest.
6.	**Grid and Utility Policies**					

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
6.1	Interconnection Rules for clean, distributed generation*	**H**	**U**	**U**		
6.2	Remove Transmission and Other Barriers for Renewable and other Clean DG*	**H**	**U**	**U**		
6.3	Net Metering	**H**	**U**	**U**		
6.4	Pricing and metering strategies	**H**				
6.5	Remove Utility Rate Barriers	**H**				
6.6	Advanced Metering	**H**				
6.7	Time-of-use Rates	**H**	**U**	**U**		CEC estimates 3 – 12% reduction in peak demand as result, emissions outcome ambiguous
6.8	Load Management (no clear GHG savings)	**H**	**U**	**U**		
6.9	Transmission System Upgrading	**H**	**U**	**U**		
6.10	Reduce Transmission and Distribution Line Loss	**H**	**U**	**U**		
6.11	Integrated Resource Planning	**H (added by CCAG)**				
6.12	Aligning utility rates with public interest	**H (added by CCAG)**				
6.13	Automatic pass-through fuel adjustors					
7.	**Education and Awareness**					
7.1	Brownfield Re-development	**M**	**U**	**U**		
7.2	Environmental (emissions) Disclosure	**H**	**U**	**U**		
7.3	Public Education	**H**	**U**	**U**		
8.	**Natural Gas System**					
8.1	Leak reduction program	**H**				
9.	**Hydrogen**					
9.1	Incentives for hydrogen development	**M**				